

Research Paper :

## Seed treatment, an eco-friendly management tactic for the suppression of insect pests in sorghum



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### SUMMARY

A field trial was conducted at the Regional Agricultural Research Station, Bijapur, Karnataka, India during *Rabi* season of 2005-06 to find out eco-friendly management tactics for the suppression of insect pests in sorghum. The results revealed that, the seed treatment with thiamethoxam 70 WS @ 3 g/kg seeds proved highly effective against shoot fly and significantly superior over rest of the treatments by recording 5.2 per cent deadhearts. The next best treatment in respect of shoot fly suppression was seed treatment with thiamethoxam 70 WS @ 2 g/kg seeds which in turn was on par with imidacloprid 70 WS @ 5g/kg seeds. With respect to aphid incidence, three treatments *viz.*, whorl application of carbofuran 3G @ 8 kg/ha at 35-40 days after sowing (DAS), spray with endosulfan 35 EC @ 0.07% at 35-40 DAS and seed treatment with thiamethoxam 70 WS @ 3 g/kg seeds with low aphid incidence of 9.3, 10.2 and 10.2 per cent aphid index, respectively were highly effective and significantly superior over rest of the treatments. The seed treatment with thiamethoxam 70 WS @ 3 g/kg seeds proved highly effective in reducing the sorghum stripe disease incidence (5.2%) and significantly superior over rest of the treatments except seed treatment with imidacloprid 70 WS @ 5 g/kg seeds (8.2%). Seed treatment with thiamethoxam 70WS @ 3 g/kg seeds recorded highest grain yield (22.5 q/ha) and fodder yield (54.3 q/ha) and followed by seed treatment by imidacloprid 70 WS @ 5 g/kg seeds (21.7 and 52.1 q/ha grain and fodder yield, respectively) and thiamethoxam 70 WS @ 2 g/kg seeds (20.4 and 51.3 q/ha grain and fodder yield, respectively) and were at par with each other.

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Sorghum

Sorghum is vulnerable to over 150 insect species from sowing to the final crop harvest (Sharma, 1985). In this region three insect pests namely, shoot fly, shoot bug and aphid are the important regular pests. The sorghum shoot fly, *Atherigona soccata* Rondani causes severe damage in the early stage and lasts up to four weeks causing severe reduction in plant population. Maximum yield losses of 75.6% in grain and 68.6% in fodder have been reported by Pawar *et al.* (1984). Its incidence is greater in late sown crop in rainy and post rainy seasons in India. Several workers have tried different insecticides for this pest (Shivpuje and Thombare, 1983; Patil *et al.*, 1992; Panchabhavi and Kotikal, 1992). Sorghum aphid, *Melanaphis sacchari* (Zehntner) is distributed in Asia, Africa and America. It prefers to feed on the under surface of older leaves, resulting in premature drying of leaves, non-filling of grains and

deterioration of fodder quality. Spraying or dusting of several insecticides are being recommended for its control. The shoot bug, *Peregrinus maidis* (Ashmead) previously considered to be of minor importance, but now with the introduction of new sorghum genotypes of different maturity periods in certain parts of Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu has become a serious pest. The shoot bug is a major hurdle in *Rabi* sorghum production by causing dual problem of direct loss by sucking the sap and indirect damage by transmitting sorghum stripe virus disease. Hence, it comes in the way of harvesting potential yield of grain and fodder. Managing the pest in established sorghum ecosystem through chemical spraying has several limitations. Farmers are unable to go for spraying due to increased cost of production of sorghum and also phytotoxic effect of these insecticides on foliage. Hence, different seed

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